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CURRICULUM VITAE

John Michael Sandrik

Address (work)

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Date of Birth

Citizenship

Education

University of Wisconsin, Madison, Ph.D., Radiological Sciences (Medical Physics), ---.
University of Wisconsin, Madison, M.S., Physics, ---.
University of Illinois, Chicago, B.S., Physics,---.

Positions

Imaging Physicist, Diagnostic X-ray Engineering, GE Healthcare, Milwaukee, WI, 1994 to present.
Senior Physicist, Applied Science Laboratory, GE Medical Systems, Milwaukee, WI, 1981 to 1994.
Physicist, Medical Physics Branch, Division of Electronic Products, Bureau of Radiological Health, Rockville, MD, 1978 to 1981.

Membership

American Association of Physicists in Medicine

Appointments

Chairman, Mammography Sub-committee, X-ray Imaging Products Section, National Electrical Manufacturers Association (NEMA), 1998 to present.
Industry representative on FDA's Technical Electronic Products Radiation Safety Standards Committee, 1999 – 2002.
Assistant Adjunct Professor, Medical College of Wisconsin, Milwaukee, WI, 1 December 1992.

Experience

Current responsibilities include providing physics expertise on conventional and digital mammographic imaging systems and regulatory matters for headquarters systems engineers, field service engineers, mammography marketing and sales staff, and medical physicists.

Monitored and developed responses to regulations proposed by state and federal regulatory bodies and recommendations proposed by institutions such as the American College of Radiology. Developed comments on regulations being developed and achieved modifications to existing ones, for example, through the development of variances and alternative standards to federal regulations.

Developed and presented training in conventional and digital mammography physics to mammography sales and applications specialists so they can more accurately represent the characteristics of GE products to users and potential customers. Participated in seminars for the training of medical physicists in the performance of quality control testing of digital mammography systems.

Presenter or panelist on GE Medical Systems' Tip™-TV television broadcasts providing training for radiologic technologists on "Mammography Rules and Regulations," "Mammographic Image Quality-Physics and Instrumentation," "Mammographic Image Quality, Part II," "Radiation Dose Savings," "MQSA Regulation Update," "XR Mammography: Digital Imaging," "Final MQSA Regulations," and "Full Field Digital Mammography Quality Control, Part II."

Have expertise in the modeling and measurement of the physical imaging performance – sensitometric response, spatial frequency response, noise characteristics, etc. – of conventional radiographic, digital fluoroscopic, computed tomographic, and mammographic imaging systems.

Member of NEMA Image Intensifier Systems Subcommittee from December, 1984, through February, 1991. Contributed to the development of standards for the measurement of the performance of medical x-ray image intensifier imaging systems.

Member of Working Group 16: Characteristics of X-ray Image Intensifiers, Subcommittee 62B: X-ray Equipment Operating up to 400 kV and Accessories, Technical Committee 62: X-ray Equipment in Medical Practice, International Electrotechnical Commission (IEC), from April, 1985, through February, 1991. Contributed to the development of standards for the measurement of performance of x-ray image intensifiers used in medical imaging systems.

At the Bureau of Radiological Health (currently the Center for Devices and Radiological Health), studied the measurement of the physical imaging performance of radiographic screen-film systems. Participated in the development of consensus methods of measuring the modulation transfer function (MTF), noise power spectrum (NPS), detective quantum efficiency (DQE), and noise equivalent quanta (NEQ) of screen-film imaging systems.

Assisted in teaching Biomedical Engineering curriculum courses on "The Physics of Ionizing Radiation," "The Physics of Medical Imaging," and "The Physics of the Human Body" at the Medical College of Wisconsin, Milwaukee, WI.

Doctoral research was the development of a fluoroscopic imaging system to produce quantitative absorptometric measurements from the analysis of digitized video signals.

Publications

J. E. Tkaczyk, J. W. LeBlanc, R. L. Nevin, G. M. Kautz, D. Albagli, J. M. Sandrik, and P. R. Granfors, "Modeling the x-ray energy characteristics of DQE for full-field digital mammography," *Proc. SPIE Vol. 4320*, p. 570-581, Medical Imaging 2001: Physics of Medical Imaging, Larry E. Antonuk; Martin J. Yaffe; Eds.

L. Desponds, R. Klausz, J. M. Sandrik, A. Richards, "Automatic Optimization of Mammographic X-ray Parameters by Estimating Breast Composition with the X-ray System," *Radiology*, **201(P)**, 191 (abstract), 1996. Presented at 1996 Annual Meeting of RSNA, Chicago, IL, 1 - 6 Dec 1996.

J. M. Sandrik, "Standardization of image quality measurements of medical x-ray image intensifier systems," in *Standards for Electronic Imaging Systems*, Critical Reviews of Optical Science and Technology, vol. CR37, Michael Nier and Marilyn E. Courtot (eds), SPIE Optical Engineering Press, 1991.

J. M. Sandrik and P. R. Granfors, "MTFs of a Multiformat Camera," *Medical Physics*, **13**, 594 (abstract), 1986. Presented at 1986 Annual Meeting of AAPM, Lexington, Kentucky, 3-7 Aug 1986.

J. M. Sandrik, "The Video Camera for Medical Imaging," in *Electronic Imaging in Medicine*, Medical Physics Monograph No. 11, G.D. Fullerton, et al. (eds.), Amer. Inst. of Physics, 1984.

S. W. Smith, R. F. Wagner, J. M. Sandrik, and H. Lopez, "Low Contrast Detectability and Contrast/Detail Analysis in Medical Ultrasound," *IEEE Trans. on Sonics and Ultrasonics*, **30**, 164, 1983.

R. F. Wagner, S. W. Smith, J. M. Sandrik, and H. Lopez, "Statistics of Speckle in Ultrasound B-Scans," *IEEE Trans. on Sonics and Ultrasonics*, **30**, 156, 1983.

J. M. Sandrik, R. F. Wagner, and K. M. Hanson, "Radiographic Screen-Film Noise Power Spectrum: Calibration and Intercomparison," *Applied Optics*, **21**, 3597, 1982.

J. M. Sandrik and R. F. Wagner, "Absolute Measures of Physical Image Quality: Measurement and Application to Radiographic Magnification," *Medical Physics*, **19**, 540 1982.

J. M. Sandrik and R. F. Wagner, "Radiographic Screen-Film Noise Power Spectrum: Variation with Microdensitometer Slit Length," *Applied Optics*, **20**, 2795, 1981.

R. F. Wagner and J. M. Sandrik, "An Introduction to Digital Noise Analysis," in *The Physics of Medical Imaging: Recording System Measurements and Techniques*, A.G. Haus (ed.), Amer. Inst. of Physics, 1979.

J. M. Sandrik, R. J. Jennings and R. F. Wagner, "Comparison of Modulation Transfer Function, Noise Power Spectrum, and Sensitometric Measurements of X-ray Screen-Film Systems Made in Two Different Laboratories," in *Proc. Symposium on Biological Effects, Imaging Techniques, and Dosimetry of Ionizing Radiations*, Rockville, MD, 6-8 June, 1979, HHS Pub. (FDA) 80-8126, July, 1981.

Patents

Nos. 4,513,078 (23 April 1985) and 4,603,428 (29 July 1986), "Film-based Dual Energy Radiography" (with N. J. Pelc).

No. 4,852,139 (25 July 1989), "Reduction of Flicker During Video Imaging of Cine Procedures" (with R. F. Saunders).

No. 5,236,363 (17 Aug 1993), "Phantom for Simulating an X-ray Exam Patient" (with G. M. Geiger).

No. 5,321,272 (14 June 1994), "X-ray Beam Stop" (with P. R. Granfors).

No. 5,530,735 (25 June 1996), "On-Line Measurement of X-ray Tube Voltage in a CT System" (with M. F. Gard).